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|--------------|--|
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=> S (brain or (spinal cord) and (injury or trauma or degenerat? or stroke or anoxia)

UNMATCHED LEFT PARENTHESIS '(BRAIN'

The number of right parentheses in a query must be equal to the number of left parentheses.

=> S (brain or (spinal cord) and (injury or trauma or degenerat? or stroke or anoxia))

L1 2237308 (BRAIN OR (SPINAL CORD) AND (INJURY OR TRAUMA OR DEGENERAT? OR STROKE OR ANOXIA))

=> S (bone marrow cells) and cultured

6 FILES SEARCHED...

L2 18688 (BONE MARROW CELLS) AND CULTURED

=> s l1 and l2

L3 2819 L1 AND L2

=> s l3 and (inject? or implant? or transplant?)

L4 2670 L3 AND (INJECT? OR IMPLANT? OR TRANSPLANT?)

=> s l4 and (marrow stromal cells)

L5 210 L4 AND (MARROW STROMAL CELLS)

=> s l5 and neurosphere#

L6 5 L5 AND NEUROSPHERE#

=> s l6 and (new neuron? or (nerve regenerat?))

UNMATCHED LEFT PARENTHESIS 'AND (NEW'

The number of right parentheses in a query must be equal to the number of left parentheses.

=> s l6 and (new neuron? or (nerve regenerat?))

L7 0 L6 AND (NEW NEURON? OR (NERVE REGENERAT?))

=> s l6 and regenerat?

L8 4 L6 AND REGENERAT?

=> d l8 1-4 ibib abs

L8 ANSWER 1 OF 4 USPATFULL on STN

ACCESSION NUMBER: 2003:231620 USPATFULL

TITLE: Cultures, products and methods using stem cells

INVENTOR(S): Weiss, Mark L., Manhattan, KS, UNITED STATES

Troyer, Deryl L., Manhattan, KS, UNITED STATES

Davis, Duane, Westmoreland, KS, UNITED STATES

Mitchell, Kathy E., Manhattan, KS, UNITED STATES

PATENT ASSIGNEE(S): Kansas State University Research Foundation (U.S. corporation)

|                       | NUMBER  | KIND | DATE          |
|-----------------------|---|------|---------------|
| PATENT INFORMATION:   | US 2003161818   | A1   | 20030828      |
| APPLICATION INFO.:    | US 2002-83779   | A1   | 20020225 (10) |
| DOCUMENT TYPE:        | Utility   |      |               |
| FILE SEGMENT:         | APPLICATION   |      |               |
| LEGAL REPRESENTATIVE: | MERCHANT & GOULD PC, P.O. BOX 2903, MINNEAPOLIS, MN, 55402-0903 |      |               |
| NUMBER OF CLAIMS:     | 43  |      |               |
| EXEMPLARY CLAIM:      | 1   |      |               |
| LINE COUNT:           | 1447  |      |               |

AB Stem cells from human sources can have a variety of useful applications in disease treatment and biotechnology. More particularly the umbilical cord matrix stem (UCMS) cell cultures of the invention have a variety of totipotent, pluripotent, or multipotent cells for a variety of end uses from a non-controversial, universally available, species-specific source. The technology can have application to any placental animal, including agricultural and laboratory animals and humans. The invention relates to isolating, culturing the stem cells, maintaining the stem cells, transforming the stem cells into useful cell types using genetic or other transformation technologies, stem cell and tissue banking and using untransformed or transformed cells in disease treatment.

L8 ANSWER 2 OF 4 USPATFULL on STN  
 ACCESSION NUMBER: 2003:166054 USPATFULL  
 TITLE: Pluripotent stem cells derived without the use of embryos or fetal tissue  
 INVENTOR(S): Levanduski, Mike, River Vale, NJ, UNITED STATES

|                       | NUMBER  | KIND | DATE          |
|-----------------------|---|------|---------------|
| PATENT INFORMATION:   | US 2003113910   | A1   | 20030619      |
| APPLICATION INFO.:    | US 2001-26420   | A1   | 20011219 (10) |
| DOCUMENT TYPE:        | Utility   |      |               |
| FILE SEGMENT:         | APPLICATION   |      |               |
| LEGAL REPRESENTATIVE: | DAVIDSON, DAVIDSON & KAPPEL, LLC, 14th Floor, 485 Seventh Avenue, New York, NY, 10018 |      |               |
| NUMBER OF CLAIMS:     | 76  |      |               |
| EXEMPLARY CLAIM:      | 1   |      |               |
| NUMBER OF DRAWINGS:   | 3 Drawing Page(s)   |      |               |
| LINE COUNT:           | 3528  |      |               |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention provides a method for deriving precursors to pluripotent non-embryonic stem (P-PNES) and pluripotent non-embryonic stem (PNES) cell lines. The present invention involves nuclear transfer of genetic material from a somatic cell into an enucleated, zona pellucida free human ooplastoid having a reduced amount of total cytoplasm. The present invention provides a new source for obtaining human and other animal pluripotent stem cells. The source utilizes as starting materials an oocyte and a somatic cell as the starting materials but does not require the use, creation and/or destruction of embryos or fetal tissue and does not in any way involve creating a cloned being. The oocyte never becomes fertilized and never develops into an embryo. Rather, portions of the oocyte cytoplasm are extracted and combined with the nuclear material of individual mature somatic cells in a manner that precludes embryo formation. Murine, bovine, and human examples of the procedure are demonstrated. Subsequently, the newly constructed P-PNES cells are **cultured** in vitro and give rise to PNES cells and cell colonies. Methods are described for culturing the P-PNES cells to yield purified PNES cells which have the ability to differentiate into cells derived from mesoderm, endoderm, and ectoderm germ layers. Methods are described for maintaining and proliferating PNES cells in culture in an

undifferentiated state. Methods and results are described for analysis and validation of pluripotency of PNES cells including cell morphology, cell surface markers, pluripotent tumor development in SCID mouse, karyotyping, immortality in in vitro culture.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 3 OF 4 USPATFULL on STN

ACCESSION NUMBER: 2002:164392 USPATFULL

TITLE: Tolerizing allografts of pluripotent stem cells

INVENTOR(S): Chiu, Choy-Pik, Cupertino, CA, UNITED STATES

Kay, Robert M., San Francisco, CA, UNITED STATES

| NUMBER | KIND | DATE |
|--------|------|------|
|--------|------|------|

PATENT INFORMATION: US 2002086005 A1 20020704

APPLICATION INFO.: US 2001-990522 A1 20011121 (9)

| NUMBER | DATE |
|--------|------|
|--------|------|

PRIORITY INFORMATION: US 2000-252688P 20001122 (60)

DOCUMENT TYPE: Utility

FILE SEGMENT: APPLICATION

LEGAL REPRESENTATIVE: GERON CORPORATION, 230 CONSTITUTION DRIVE, MENLO PARK, CA, 94025

NUMBER OF CLAIMS: 20

EXEMPLARY CLAIM: 1

LINE COUNT: 1045

AB This disclosure provides a system for overcoming HLA mismatch between an allograft derived from stem cells, and a patient being treated for tissue **regeneration**. A state of specific immune tolerance is induced in the patient, by administering a population of tolerizing cells derived from the stem cells. This allows the patient to accept an allograft of differentiated cells derived from the same source. This invention is important because it allows a single line of stem cells to act as a universal donor source for tissue **regeneration** in any patient, regardless of tissue type.

L8 ANSWER 4 OF 4 MEDLINE on STN

ACCESSION NUMBER: 2002046690 MEDLINE

DOCUMENT NUMBER: PubMed ID: 11776476

TITLE: Brain from bone: efficient "meta-differentiation" of marrow stroma-derived mature osteoblasts to neurons with Noggin or a demethylating agent.

AUTHOR: Kohyama J; Abe H; Shimazaki T; Koizumi A; Nakashima K; Gojo S; Taga T; Okano H; Hata J; Umezawa A

CORPORATE SOURCE: Department of Pathology, Keio University School of Medicine, Tokyo, Japan.

SOURCE: Differentiation; research in biological diversity, (2001 Oct) 68 (4-5) 235-44.

Journal code: 0401650. ISSN: 0301-4681.

PUB. COUNTRY: Germany: Germany, Federal Republic of

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200204

ENTRY DATE: Entered STN: 20020125

Last Updated on STN: 20020419

Entered Medline: 20020418

AB Bone **marrow stromal cells** are able to differentiate into adipogenic, chondrogenic, myogenic, osteogenic, and cardiomyogenic lineages, all of which are limited to a mesoderm-derived origin. In this study, we showed that neurons, which are of an

ectoderm-origin, could be generated from marrow-derived stromal cells by specific inducers, fibronectin/ornithine coating, and **neurosphere** formation. The neurons generated from marrow stroma formed neurites, expressed neuron-specific markers and genes, and started to respond to depolarizing stimuli as functional mature neurons. Among stromal cells, isolated mature osteoblasts which had strong *in vivo* osteogenic activity could be efficiently converted into functional neurons. This transdifferentiation or meta-differentiation was enhanced by Noggin, an inhibitor of bone morphogenetic proteins, in comparison with 5-azacytidine, a demethylating agent capable of altering the gene expression pattern. Marrow stroma is therefore a potential source of cells for neural cell **transplantation**.

=> S (nerve or neural) and (regenerat? or heal? or generat?)  
L9 291992 (NERVE OR NEURAL) AND (REGENERAT? OR HEAL? OR GENERAT?)

=> s l9 and ((bone marrow) or (marrow stromal) or neurosphere)  
1 FILES SEARCHED...  
L10 8788 L9 AND ((BONE MARROW) OR (MARROW STROMAL) OR NEUROSPHERE)

=> s l10 and (transplant? or implant? or inject?)  
<-----User Break----->

SEARCH ENDED BY USER  
SEARCH ENDED BY USER

=> s l10 and (transplant? or implant? or inject?)  
L11 7799 L10 AND (TRANSPLANT? OR IMPLANT? OR INJECT?)

=> s l11 and (brain or (spinal cord))  
L12 6001 L11 AND (BRAIN OR (SPINAL CORD))

=> s l12 and cultured  
L13 4832 L12 AND CULTURED

=> s l13 and (new neurons)  
L14 70 L13 AND (NEW NEURONS)

=> s l14 and (trauma or injury or stroke)  
L15 65 L14 AND (TRAUMA OR INJURY OR STROKE)

=> s l15 and (marrow stromal cells)  
L16 2 L15 AND (MARROW STROMAL CELLS)

=> d l16 1-2 ibib abs

L16 ANSWER 1 OF 2 USPATFULL on STN

ACCESSION NUMBER: 2004:152461 USPATFULL  
TITLE: Methods and materials relating to neurotrimin-like polypeptides and polynucleotides  
INVENTOR(S): Boyle, Bryan J., San Francisco, CA, UNITED STATES  
Mize, Nancy K., Mountain View, CA, UNITED STATES  
Arterburn, Matthew C., Los Gatos, CA, UNITED STATES  
Yeung, George, Mountain View, CA, UNITED STATES  
Tang, Y. Tom, San Jose, CA, UNITED STATES  
Zhou, Ping, Cupertino, CA, UNITED STATES  
Liu, Chenghua, San Jose, CA, UNITED STATES  
Drmanac, Radoje T., Palo Alto, CA, UNITED STATES  
Asundi, Vinod, Foster City, CA, UNITED STATES  
Wang, Meng-Yun, Saratoga, CA, UNITED STATES  
Chen, Lichuan, Sunnyvale, CA, UNITED STATES  
Yang, Yea-Huey, Milpitas, CA, UNITED STATES

|                       | NUMBER   | KIND | DATE          |
|-----------------------|--|------|---------------|
| PATENT INFORMATION:   | US 2004116683                                  | A1   | 20040617      |
| APPLICATION INFO.:    | US 2003-311823                                 | A1   | 20030929 (10) |
|                       | WO 2001-US3651                                 |      | 20010202      |
| DOCUMENT TYPE:        | Utility  |      |               |
| FILE SEGMENT:         | APPLICATION                                    |      |               |
| LEGAL REPRESENTATIVE: | NUVELO, 675 ALMANOR AVE., SUNNYVALE, CA, 94085 |      |               |
| NUMBER OF CLAIMS:     | 30   |      |               |
| EXEMPLARY CLAIM:      | 1  |      |               |
| NUMBER OF DRAWINGS:   | 4 Drawing Page(s)                              |      |               |
| LINE COUNT:           | 5912   |      |               |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides novel polynucleotides and polypeptides encoded by such polynucleotides and mutants or variants thereof that correspond to a novel human secreted neurotramin-like polypeptide. These polynucleotides comprise nucleic acid sequences isolated from cDNA library from human thalamus (Hyseq clone identification number 10468562). Other aspects of the invention include vectors containing processes for producing novel human secreted neurotramin-like polypeptides, and antibodies specific for such polypeptides.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L16 ANSWER 2 OF 2 USPATFULL on STN  
 ACCESSION NUMBER: 2003:51236 USPATFULL  
 TITLE: Methods for treating a neurological disorder by peripheral administration of a trophic factor  
 INVENTOR(S): Fallon, James H., Irvine, CA, UNITED STATES  
 Kinyamu, Richard M., Irvine, CA, UNITED STATES

|                       | NUMBER  | KIND | DATE          |
|-----------------------|---|------|---------------|
| PATENT INFORMATION:   | US 2003036193   | A1   | 20030220      |
| APPLICATION INFO.:    | US 2002-167384  | A1   | 20020610 (10) |
| RELATED APPLN. INFO.: | Continuation-in-part of Ser. No. US 1998-129028, filed on 4 Aug 1998, PENDING |      |               |

|                       | NUMBER   | DATE          |
|-----------------------|--|---------------|
| PRIORITY INFORMATION: | US 1997-55383P   | 19970804 (60) |
|                       | US 2001-328725P  | 20011011 (60) |
|                       | US 2001-297518P  | 20010611 (60) |
| DOCUMENT TYPE:        | Utility  |               |
| FILE SEGMENT:         | APPLICATION  |               |
| LEGAL REPRESENTATIVE: | BOZICEVIC, FIELD & FRANCIS LLP, 200 MIDDLEFIELD RD, SUITE 200, MENLO PARK, CA, 94025 |               |
| NUMBER OF CLAIMS:     | 32   |               |
| EXEMPLARY CLAIM:      | 1  |               |
| NUMBER OF DRAWINGS:   | 3 Drawing Page(s)  |               |
| LINE COUNT:           | 1709   |               |

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of treating a subject having a disease, disorder or condition of the central nervous system. The methods include administering TGF- $\alpha$ polypeptides, related polypeptides, fragments and mimetics thereof useful in stimulating progenitor cell or stem cell proliferation, migration and differentiation. The methods of the invention are useful to treat and prophylactically ameliorate neurological tissue injury in vivo.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 4 OF 4 MEDLINE on STN  
ACCESSION NUMBER: 2002046690 MEDLINE  
DOCUMENT NUMBER: PubMed ID: 11776476  
TITLE: **Brain** from bone: efficient "meta-differentiation" of marrow stroma-derived mature osteoblasts to neurons with Noggin or a demethylating agent.  
AUTHOR: Kohyama J; Abe H; Shimazaki T; Koizumi A; Nakashima K; Gojo S; Taga T; Okano H; Hata J; Umezawa A  
CORPORATE SOURCE: Department of Pathology, Keio University School of Medicine, Tokyo, Japan.  
SOURCE: Differentiation; research in biological diversity, (2001 Oct) 68 (4-5) 235-44.  
PUB. COUNTRY: Germany: Germany, Federal Republic of  
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)  
LANGUAGE: English  
FILE SEGMENT: Priority Journals  
ENTRY MONTH: 200204  
ENTRY DATE: Entered STN: 20020125  
Last Updated on STN: 20020419  
Entered Medline: 20020418

AB Bone marrow stromal cells are able to differentiate into adipogenic, chondrogenic, myogenic, osteogenic, and cardiomyogenic lineages, all of which are limited to a mesoderm-derived origin. In this study, we showed that neurons, which are of an ectoderm-origin, could be generated from marrow-derived stromal cells by specific inducers, fibronectin/ornithine coating, and **neurosphere** formation. The neurons generated from marrow stroma formed neurites, expressed neuron-specific markers and genes, and started to respond to depolarizing stimuli as functional mature neurons. Among stromal cells, isolated mature osteoblasts which had strong *in vivo* osteogenic activity could be efficiently converted into functional neurons. This transdifferentiation or meta-differentiation was enhanced by Noggin, an inhibitor of bone morphogenetic proteins, in comparison with 5-azacytidine, a demethylating agent capable of altering the gene expression pattern. Marrow stroma is therefore a potential source of cells for neural cell **transplantation**.